CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-____

REQUIRING
MUSCO FAMILY OLIVE COMPANY
AND
THE STUDLEY COMPANY
WASTEWATER TREATMENT AND LAND DISPOSAL FACILITY
SAN JOAQUIN COUNTY

TO CEASE AND DESIST
FROM DISCHARGING CONTRARY TO REQUIREMENTS

TENTATIVE

The Regional Water Quality Control Board, Central Valley Region, (hereafter referred to as Regional Water Board) finds that:

1. Musco Family Olive Company operates an olive brining and packaging plant south Tracy, near Patterson Pass Road. The facility (Assessor's Parcel Numbers 209-11-18, 209-11-31, 209-11-32, 251-32-08, 251-32-09) is in Section 34, T2S, R4E, and Sections 3 and 4 of T3S, R4E, MDB&M. Musco operates the facility on land leased from the Studley Company. The Studley Company is a limited liability partnership owned by the Musco family. Musco Family Olive Company and the Studley Company are hereafter referred to jointly as 'Discharger'.

2. Wastewater disposal at the facility is regulated by two separate Waste Discharge Requirements (WDRs). WDRs Order No. R5-2005-0024 regulates the discharge of concentrated brines to two Class II surface impoundments under Division 2, Title 27, California Code of Regulations (27 CCR or Title 27). These brines are classified as designated wastes pursuant to Title 27. WDRs Order No. R5-2002-0148 regulates the discharge of less concentrated wastewaters that are applied to land. This Order consolidates the Regional Water Board's previous requests and requirements for data and other information into a single enforcement Order.

3. Wastewater is collected throughout the facility by floor drains and is piped to a central collection area from which it either is directed to the Class II surface impoundments or is pumped to an unlined, million-gallon pond.

4. Wastewater is pumped from the million-gallon pond to an unlined, 84-million gallon storage reservoir prior to land application. The reservoir is equipped with aerators to reduce odors and provide biological treatment. From the storage reservoir, wastewater is applied to approximately 200 acres of land application fields.

5. The discharge of the designated waste brines to the Class II surface impoundments was first regulated under Title 27 WDRs adopted in 1986. At that time, the facility had one impoundment with a capacity of 38.5 acre-feet (Pond A). In 1996, the Regional Water Board adopted revised WDRs to cover the addition of a second impoundment with a

capacity of 32.3 acre-feet (Pond B). On 27 January 2005, the Regional Water Board adopted the current Title 27 WDRs, Order No. R5-2005-0024, for the two surface impoundments.

6. The Regional Water Board first adopted WDRs for land application of process wastewater at the Musco facility in 1987. The first WDRs authorized the discharge of approximately 10,000 gallons per day (gpd) to 4.5 acres of land. In 1997, the Regional Water Board adopted revised WDRs, Order No. 97-037, to reflect the Discharger's increased process wastewater flow rate, and authorized the discharge of 500,000 gpd to 200 acres of land. On 6 September 2002, the Regional Water Board adopted WDRs Order No. R5-2002-0148 to allow an increased flow rate of 800,000 gpd of olive processing wastewater to be applied to the same 200 acres of land. WDRs Order No. R5-2002-0148 included limitations to minimize pond odors, effluent limitations to limit salt loading rates to the land disposal areas, specifications to ensure the proper operation and maintenance of the land disposal areas, provisions requiring the performance of certain tasks and submittal of certain technical reports, and monitoring and reporting requirements.

7. As detailed in Attachment A (which is attached hereto and made part of this Order by reference), the Discharger is in noncompliance with WDRs Order No. R5 2002 0148, as evidenced by self-monitoring reports and facility inspections. The Discharger has violated limits for freeboard, pH, dissolved oxygen, and dissolved sulfide in the pond and reservoir; specifications for maintenance and operation of wastewater storage, conveyance, and disposal systems; pH, organic, and nutrient loading rates to the land treatment units; interim effluent limitations for salts; prohibitions and specifications for maintaining wastewater and stormwater on-site; provisions requiring certain studies and technical reports; and monitoring and reporting requirements.

8. The complex hydrogeology and incomplete background groundwater quality data resulted in the Regional Water Board establishing interim effluent limitations for total dissolved solids (TDS), sodium, and chloride in WDRs Order No. R5-2002-0148.

9. On 30 January 2007, the Discharger submitted an *Amended Report of Waste Discharge* (Amended RWD). The Amended RWD included a request for revision of the current WDRs, as well as proposals for completion of technical studies and projects. Regional Water Board staff determined that the Amended RWD is incomplete. This Order requires the Discharger to comply with its current WDRs, provide additional data, and submit a revised RWD. This Order also provides a compliance schedule where necessary.

Enforcement History for Land Application Areas

10. On 17 November 2000, the Executive Officer issued Cleanup and Abatement Order (CAO) No. 5-00-717 due to wastewater spills to surface waters and surface water drainage courses. The CAO required the Discharger to develop and implement a *Contingency Report*, including procedures to prevent surface runoff from the disposal fields, prevent wastewater from entering surface watercourses, and contain all wastewater on site. The CAO also required the Discharger to submit a stormwater and

surface water sampling workplan, a hydrogeologic investigation workplan, and a report describing the construction of additional wastewater facilities and improvements to wastewater-generating processes.

11. The Discharger submitted most of the technical reports required by CAO No. 5-00-717, but Regional Water Board staff determined that the treatment system improvements were not constructed. Therefore, the Discharger failed to comply with WDRs No. 97-037.

12. On 25 January 2002, the Regional Water Board adopted Time Schedule Order (TSO) No. R5-2002-0014 pursuant to Section 13308 of the California Water Code (CWC), requiring the Discharger to submit delinquent reports required by WDRs No. 97-037 and the CAO. The Time Schedule Order specified civil penalties for violations of the time schedule in the order.

13. Following a review of discharger self-monitoring reports submitted for the months of January through March 2002, Regional Water Board staff issued a Notice of Violation on 8 May 2002 for failure to report the results of monitoring required by the WDRs and revised MRP No. 97-037.

14. On 9 April 2002, the Executive Officer issued Administrative Civil Liability (ACL) Complaint No. R5-2002-0502 in the amount of $150,000, which addressed civil liabilities incurred by the Discharger for failure to comply with the CAO from the date of the CAO issuance (November 2000) through issuance of TSO No. R5-2002-0014 (January 2002). The Discharger paid the liability in full.

15. Following an inspection of the Musco facility on 10 May 2002, Regional Water Board staff issued a Notice of Violation for violations of WDRs No. R5-2002-0148, CAO No. 5-00-717, and TSO No. R5-2002-0014. Violations included discharge of wastewater to areas without actively growing crops, offensive odors off-site of the Musco property, discharge of wastewater to a surface water drainage course, and failure to initiate construction of the reservoir in accordance with the TSO.

16. On 6 June 2002, the Regional Water Board revised TSO No. R5-2002-0014 to extend some compliance dates and to require completion of additional tasks. The revised Time Schedule Order was renumbered to R5-2002-0014-R01.

17. In September 2002, the San Joaquin County District Attorney's office filed a $5 million complaint against the Discharger for violations of the California Fish and Game Code and California Health and Safety Code. The Statement of Action for the complaint stated that it was filed to "*prohibit Defendants* [Discharger] *from continuing to discharge pollutants and deleterious substances from their various businesses. Such discharges violate the Water Code and regulations promulgated thereunder, the Fish & Game Code, statutes prohibiting the discharge of designated waste and laws related to public nuisance*." The Discharger settled the complaint for $539,500 in August 2003.

18. On 6 September 2002, the Regional Water Board adopted WDRs Order No. R5-2002-0148 and CAO No. R5-2002-0149. The CAO required the Discharger to achieve full compliance with WDRs by 6 September 2004. Because the Discharger could not immediately comply with certain interim effluent limits contained in the new WDRs, the CAO contained a two-year schedule to attain compliance.

19. On 18 September 2002, Regional Water Board staff issued a Notice of Violation for the detection of nuisance odors in the area surrounding the Musco facility on 28 August, 4 September, 11 September, and 18 September 2002. The detection of nuisance odors off-site of the Musco property violated WDRs No. R5-2002-0148 and TSO No. R5-2002-0014-R01.

20. Following an inspection of the Musco facility on 9 October 2002, Regional Water Board staff issued a Notice of Violation for violations of WDRs No. R5-2002-0148 and TSO No. R5-2002-0014-R01. Violations included an ongoing discharge of wastewater to a surface water drainage course from the million-gallon pond, the bypass of unscreened waste, discharge to a pond with inadequate freeboard, nuisance odors noted at a private residence off-site of the Musco property, dissolved oxygen concentrations and pH in million-gallon pond outside the permitted range, fly breeding, discharge of designated waste to land, and failure to grow crops in the 95-acre land application area.

21. Following an inspection of the Musco facility on 12 March 2003, Regional Water Board staff issued a Notice of Violation for violations of WDRs No. R5-2002-0148. Violations included dissolved oxygen concentrations and pH in pond and reservoir outside of the permitted range, poor operations of systems and equipment, and exceedance of the effluent limitation for chloride. The Notice of Violation also described threatened violations of land application and solids disposal specifications, including application of wastewater to areas with poor crop condition, excessive erosion and runoff, and overloading of soils with solid waste application rates.

22. On 10 July 2003, Regional Water Board staff issued a Notice of Violation for the detection of nuisance odors in the area surrounding the Musco facility on 30 May 2003. The detection of nuisance odors off-site of the Musco property violated WDRs No. R5-2002-0148 and TSO No. R5-2002-0014-R01.

23. On 1 March 2004, Regional Water Board staff issued a Notice of Violation for violations of monitoring and reporting requirements contained in WDRs No. R5-2002-0148 and TSO No. R5-2002-0014-R01.

24. On 28 April 2004, the Executive Officer issued a Notice of Violation for violation of WDRs No. R5-2002-0148, Discharge Prohibition A.1, which prohibits the discharge of waste to a surface water drainage course, and TSO No. R5-2002-0014-R01, Task 16, which required submission of a report describing the reservoir construction details and showing that a liner adequate to prevent the stored wastewater from impacting the groundwater had been installed. The Notice of Violation cited the Discharger for the indirect discharge

of waste to a surface water drainage course and failure to install an adequate liner in the reservoir.

25. On 6 August 2004, the Executive Officer of the Regional Water Board issued Administrative Civil Liability (ACL) Complaint No. R5-2004-0534 in the amount of $493,000 for violations of revised TSO No. R5-2002-0014 through 31 May 2004. The ACL Complaint excluded accrued penalties for violations of Task No. 16, which required the Discharger to, in part, submit a report showing that a liner had been installed in the 84-million-gallon reservoir. The penalties were excluded pending receipt of additional technical information evaluating whether the Discharger achieved compliance with the objective, if not the letter, of Task 16. The ACL Complaint stated that "[s]*ubsequent violations of the WDRs or TSO, if any, in addition to confirmed violations of Task 16, will be addressed in a future complaint, as appropriate*." To date, no liner has been installed in the reservoir.

26. The Discharger requested that the ACL Complaint be reduced or dismissed after submitting an economic analysis. Resolution of this ACL Complaint is pending.

27. Following an inspection of the Musco facility on 23 June 2004, Regional Water Board staff issued a Notice of Violation for violations of WDRs No. R5-2002-0148. Violations included discharge of wastewater to a surface water drainage course, overspray of wastewater to off-site property, discharge of wastewater at rates in excess of agronomic uptake, lack of crop growth and lack of nitrogen uptake, excessive erosion and runoff from land application areas. The inspection report referenced in the Notice of Violation also described threatened violations of the WDRs, including discharge of waste to unlined sumps and tailwater conveyances in a manner that threatened to cause violation of the groundwater limitation, conditions conducive to vector breeding, and excessive hydraulic loading of wastewater to land application areas.

28. Following inspections of the land application areas on 23 March, 18 May, and 12 October 2006, Regional Water Board staff issued a Notice of Violation that transmitted inspection reports for the three inspections. The Discharger was cited for the discharge of wastes to surface water drainage courses, bypass or overflow of untreated or partially treated waste, application of wastewater to land treatment units not having a fully functional tailwater/runoff control system, discharge of wastewater to the prohibited 'irrigation checks' area, discharge to conveyance systems and land application areas not maintained to prevent fly breeding, failure to operate all systems and equipment to maximize treatment of wastewater and optimize the quality of discharge, failure to grow crops on the application area, over-application of wastewater at rates such that water did not infiltrate completely within 24 hours, failure to manage discharges to the land application area to minimize both erosion and runoff from the land application area, and standing water in the land application areas more than 24 hours after wastewater was applied.

29. Based on its 23 March and 18 May 2006 inspections, Regional Water Board staff concluded that, in general, the application of wastewater had adversely impacted land application area soils to the extent that they support little crop growth. Staff found that erosion damage from wastewater and stormwater runoff was severe in places, and had caused sediment accumulation in portions of the land application area. The 18 May 2006 inspection documentation indicates olive-processing wastewater spilled from various land application areas to surface water drainage courses, including an unknown quantity likely discharged to the California Aqueduct. The 18 May 2006 inspection was conducted jointly with California Department of Fish and Game (DFG) and California Department of Transportation (Caltrans) staff. The inspection was prompted by reports from DFG and Caltrans staff of various off-site discharges of Musco wastewater, including discharges to Caltrans property.

30. During its 12 October 2006 inspection, Regional Water Board staff observed standing, and sometimes fermenting, water in sumps, tailwater return ditches, and erosion rills at various land application areas/land treatment units throughout the site. As documented in the inspection report, large numbers of flies were seen clustered about the edges of several sumps and the eucalyptus grove. Tailwater conveyance, storage, and return systems were inadequate to allow for proper drainage of the fields. Given assertions by Musco staff that no wastewater had been applied for two to three days prior to the inspection, applied irrigation water had not infiltrated completely within 24 hours, as required by the WDRs. While a grass crop (NyPa Forage) had been planted on two-foot centers on the application areas, the grass was not actively growing on the majority of the fields receiving wastewater.

31. Following a review of the Discharger's self-monitoring reports submitted for the months of January 2005 through September 2006, Regional Water Board staff issued a Notice of Violation on 22 November 2006. The Notice requested, in part, that the Discharger submit a *Wastewater Treatment Facility Capacity Evaluation Report* by 10 January 2007. In response, the Discharger submitted a request for an extension of the 10 January 2006 deadline to 30 September 2007 to allow time for a licensed land surveyor to survey the current geometry of the reservoir and to determine the amount of solids accumulation. This Order allows the time extension. Because the Discharger has estimated a two million gallon reduction in storage capacity since the reservoir's completion in January 2003, this Order also requires a facility improvement plan if the capacity has diminished to the point of non-compliance with the WDRs.

32. Following sampling inspections conducted on 6 and 14 April 2007, Regional Water Board staff issued a Notice of Violation on 7 May 2007 that transmitted inspection reports, including sample results, for the two inspections. The NOV cited the Discharger for discharge of wastewater outside the designated disposal areas and failure to manage discharges to the land application area to minimize both erosion and runoff from the land application area.

33. CAO No. R5-2002-0149 includes Item 4, which states that "[b]*y 6 September 2004, the Discharger shall comply with all aspects of WDRs Order No. R5-2002-0148*." As detailed above, the Discharger is in violation of WDRs No. R5-2002-0148 and is, therefore, also in violation of CAO No. R5-2002-0149.

34. On 18 May 2007, Regional Water Board staff distributed a draft revised monitoring and reporting program for public review. Comments on the draft were due 20 June 2007.

Groundwater Quality

35. WDRs Order No. R5-2002-0148 includes Provision G.2.f, which requires submittal of a *Background Groundwater Quality and Percolate Quality Report* by 6 September 2004. The report was to include a summary of monitoring data, a calculation of the concentrations in background monitoring wells and lysimeters, and a comparison of background groundwater quality to that in wells and lysimeters used to monitor all land application areas. Provision G.2.f required the determination of background quality to be made using the methods described in Title 27 of the California Code of Regulations, Section 20415(e)(10) and stated that, should the required report show that the wastewater discharge had impacted, or was likely to impact groundwater or percolate quality, then "[f]*ailure to reduce the constituent loading rates could result in reclassification of the wastewater as designated waste and/or result in a requirement to cease the discharg*e."

36. The Discharger submitted a *Background Groundwater Quality Report*, dated 30 July 2004, in partial fulfillment of WDRs Order No. R5-2002-0148, Provision G.2.f. The report contained no information regarding percolate quality. To date, no lysimeters have been installed on-site in the land application areas, in violation of the WDRs.

37. To comply with Title 27, WDRs Order No. R5-2005-0024 required the Discharger to submit a Water Quality Protection Standard.

38. In a memorandum dated 12 December 2006, and transmitted to the Discharger on 15 December 2006, Regional Water Board staff provided an evaluation of groundwater quality at the Musco site. This evaluation was conducted to determine whether the discharge of waste had impacted the quality of the groundwater underlying the site and to evaluate recommendations made in Musco's *Background Groundwater Quality Report*. Regional Water Board staff arrived at the following conclusions:

    a. On-site monitoring well data was not collected prior to the initiation of land discharge; therefore, pre-discharge groundwater quality at the Musco property cannot be established using on-site monitoring wells. Off-site monitoring wells are necessary to determine background groundwater quality and to develop a Water Quality Protection Standard.

    b. Process wastewater storage and application has resulted in increases in groundwater concentrations over time, causing degradation or pollution of the

underlying groundwater. Although background groundwater concentrations have not yet been determined, the data clearly shows that the continuing current discharge loading rate to land does not protect water quality. Additional monitoring wells are needed to assess the extent of groundwater impacts.

39. Regional Water Board staff's 15 December 2006 letter requested the Discharger to do the following:

    a. Install shallow groundwater monitoring wells at specified locations to establish background groundwater concentrations in the shallow zone.

    b. Install off-site groundwater monitoring wells at specified locations to assess the extent of groundwater impacts.

    c. Commence sampling of a nearby artesian well.

    d. Perform an analysis of sulfate concentrations in specified wells to determine the origin of the elevated concentrations.

    e. Propose, by 31 January 2007, measures to prevent further leakage of wastewater from the million-gallon pond and the 84 million-gallon reservoir.

    f. Submit, by 31 January 2007, a proposed schedule for completing the above five items.

    g. Develop and submit a Water Quality Protection Standard (WQPS) by 31 January 2008.

40. The Discharger has proposed a phased approach to install the wells. The first phase wells were installed in May and June 2007, while the second phase wells will be installed in May 2008. A preliminary WQPS will be submitted in December 2007. This Order incorporates those dates.

41. To eliminate the groundwater impacts from the unlined million-gallon pond, the Discharger has proposed to replace the pond with a 188,000-gallon, powder-coated steel above-ground tank to be used as a pumping station. The Discharger has proposed to complete the replacement by mid-August 2007. This Order incorporates the Discharger's time schedule, and requires that the soils beneath the million-gallon pond be characterized. As discussed in a meeting between Regional Water Board staff and the Discharger, this work will be started before the adoption of this Order (Finding 50).

Land Treatment Units/Land Application Area

42. The areas where wastewater is applied to land at the Musco facility are referred to in WDRs Order No. R5-2002-0148 as either "land application areas" or "land treatment units." As noted in the WDRs, the term "land treatment unit" or "LTU" has a special meaning under Title 27. The term refers to a type of Class II waste management unit where designated wastes are applied to land to be degraded, transformed, or immobilized in the upper five feet of soil.

43. The current WDRs required certain reports to demonstrate that the discharge of wastewater to the land application areas either meets the Title 27 criteria for a LTU or is properly subject to exemption from Title 27 because the discharge complies with the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (Basin Plan) and, in particular, State Water Resources Control Board Resolution 68-16 (the anti-degradation policy).

44. WDRs Order No. R5-2002-0148 includes Provision G.2.b, which states, in part, the following: "*By 1 November 2002, the Discharger shall submit a workplan for additional characterization of…(b) percolate quality under the LTUs* [land treatment units]*…In addition, the workplan shall describe the installation of an adequate number of pan lysimeters to determine percolate quality in areas unaffected by wastewater application as well as in areas to which wastewater is applied. The workplan shall be consistent with, and include the items listed in, the first section of Attachment D, "Items to be Included in a Monitoring Well/Lysimeter Installation Workplan and Installation Report of Results*." The Discharger submitted a workplan for the required technical report. Following discussions with Regional Water Board staff (Finding 50), the Discharger agreed to submit a revised workplan and schedule for the pan lysimeters by 16 July 2007. This Order requires installation be completed by 30 September 2007

45. WDRs Order No. R5-2002-0148 includes Provision G.2.f, which reads as follows: "*By 1 August 2003, the Discharger shall submit a technical report describing the waste assimilative capacity of the LTUs (land application areas). The report shall contain the information described in Findings No. 72 through 74*." This Order requires the Discharger to submit the required report to comply with the WDRs by 30 November 2008.

Amended Conceptual Compliance Plan

46. The Discharger submitted an *Amended Conceptual Compliance Plan* dated 13 September 2006. This Plan examined potential options to comply with the WDRs, including the use of salt-tolerant NyPa Forage to achieve a net reduction of salts in site soils, source reduction, enhanced evaporation, the use of NyPa Forage as a bio-fuel, discharge to the City of Tracy's wastewater treatment plant, and direct discharge to the Sacramento River from the Discharger's currently closed Orland facility.

47. On 14 December 2006, Regional Water Board staff responded to Musco's *Amended Conceptual Compliance Plan*. Regional Water Board staff's response requested that additional information regarding the use of NyPa Forage as a means of achieving compliance and encouraged Musco to evaluate additional means of compliance, including treatment and Title 27 containment. The Discharger was requested to submit, by 31 January 2007, (a) the referenced initial testing and (b) mass balances on sodium, chloride, and total and fixed dissolved solids, including descriptions of assumptions regarding applied wastewater rates, runoff, infiltration, and NyPa Forage uptake and (c) a discussion of the anticipated effect(s) of precipitation and sprinkler irrigation on retention

of salts in the NyPa Forage foliage.

48. The Discharger's *Soil Profile and Agronomic Report* for 2006, dated 31 January 2007, stated that "[b]*ased on sodium and chloride in NyPa forage samples, removal of more salt than applied is not projected*." Therefore, the use of NyPa does not appear to be viable as the exclusive means of compliance for continued land application of olive-processing wastewater, and therefore this Order requires the Discharger to evaluate additional methods of disposing of its wastewater.

49. The Discharger has proposed, in its *Amended Conceptual Compliance Plan* and *Amended Report of Waste Discharge,* to investigate enhanced evaporation systems as an economical means of reducing the salt loading to the land application areas. The Discharger conducted a laboratory-scale enhanced evaporation study in June 2006 and proposes to design and construct a pilot-scale enhanced evaporation unit in spring 2007, with the operation and evaluation to take place in summer and fall 2007.

50. Regional Water Board staff met with representatives of the Discharger on 1 June 2007 to discuss elements of the Amended Conceptual Compliance Plan and work that needed to be completed in the summer of 2007. As recorded in a 4 June 2007 follow-up letter, the Discharger agreed to do the following:

    a. Compile and submit constituent concentrations for new process waste streams through June 2007 by 16 July 2007;

    b. Submit a *Million Gallon Pond Soil Characterization Workplan* to assess any impacts to the soils underlying the million-gallon pond (to be replaced in summer 2007), including collection of multiple core samples within the pond and background soil samples for comparison, sample extraction using the waste extraction test (WET) method with deionized water prior to laboratory analysis, and, at a minimum, analysis for total dissolved solids, fixed dissolved solids, sodium, chloride, total nitrogen, total organic carbon, and iron, by 2 July 2007;

    c. Survey the 84-million gallon reservoir in September 2007;

    d. Submit a revised Pan Lysimeter Installation Schedule and Workplan for installation of either pan lysimeters or alternative monitoring devices for assessing the migration of water and waste constituents through the soil column, in accordance with WDRs Order No. R5-2002-0148, Provision G.2.b, by 16 July 2007;

    e. Assess the capacity of its existing pumps, sumps, tailwater ditches, and conveyance structures for each disposal field during summer 2007; and

    f. Install and assess the performance of the pilot-scale enhanced evaporation unit.

Salt Limitations

51. WDRs Order No. R5-2002-0148 includes interim effluent limitations for TDS, sodium, and chloride of 2,047 mg/L, 597 mg/L, and 601 mg/L, respectively, pending the Discharger's

completion of the site-specific background groundwater quality study described in Provision G.2.j. The WDRs intended that final effluent limits be developed in 2004, after determination of background groundwater concentrations. However, background has yet to be determined, and this Order requires the installation of additional monitoring wells to resolve this issue.

52. The interim effluent limitations in the WDRs were based on data from a facility water supply well using the mean concentration plus two standard deviations for certain constituents. Regional Water Board staff's recent review of the groundwater monitoring data (Finding 38) shows that the interim effluent limits do not protect groundwater quality.

53. Because the Discharger could not immediately comply with the interim effluent limitations contained in the WDRs, Cleanup and Abatement Order No. R5-2002-0149 includes a time schedule allowing the Discharger two years to comply with the interim limitations contained in the WDRs. The time schedule provided in the CAO is shown below:

Constituent	6 Sept 2002	6 Sept 2003	6 Sept 2004
Total Dissolved Solids	4,700 mg/L	3,373 mg/L	2,047 mg/L
Sodium	739 mg/L	668 mg/L	597 mg/L

54. Since 6 September 2004, total dissolved solids and sodium concentrations in the discharge have averaged 3,600 mg/L and 670 mg/L, respectively, in violation of the CAO and the WDRs. To date, the Discharger has not demonstrated consistent compliance with the interim effluent limitations for total dissolved solids and sodium contained in WDRs Order No. R5-2002-0148 or the interim limitations contained in Cleanup and Abatement Order No. R5-2002-0149.

55. In its Amended Report of Waste Discharge, the Discharger stated that 24-hour composite sampling and analysis of wastewater using a new processing method resulted in the following salt concentrations:

Constituent	Maximum	Average	Minimum
Total Dissolved Solids	3,490 mg/L	2,894 mg/L	2,020 mg/L
Fixed Dissolved Solids	2,360 mg/L	1,897 mg/L	1,240 mg/L
Sodium	803 mg/L	603 mg/L	371 mg/L

56. This Order rescinds Cleanup and Abatement Order No. R5-2002-0149 (except for the purpose of enforcement) and includes new interim effluent limitations for total dissolved solids, fixed dissolved solids, and sodium. These new limits are based solely on the Discharger's new processing method. The tasks required by this Order will be used to determine whether these new interim effluent limitations are protective of groundwater quality or whether lower effluent limits will be necessary.

Site Runoff Water Quality

57. Overflows, spills, and off-site discharges have been documented at this site as early as 1996 and as recently as 2006. Regional Water Board staff's 18 May 2006 inspection documentation indicates olive-processing wastewater spilled from various land application areas to surface water drainage courses, including an unknown quantity likely discharged to the California Aqueduct.

58. Based on the results of the 2006 annual soil sampling data submitted by the Discharger, the average sodium concentration in the uppermost six inches of soil (at the non-background sampling stations) is 3,628 mg/L, with a minimum concentration of 439 mg/L and a maximum concentration of 11,242 mg/L. Analytical results for a sample collected 23 June 2004 by Regional Water Board staff from a property adjoining the Discharger's showed 6.9 mg/L of sodium in the uppermost six inches of soil.

59. Based on the results of the 2006 annual soil sampling data submitted by the Discharger, the average chloride concentration in the uppermost six inches of soil (at the non-background sampling stations) is 2,695 mg/L, with a minimum concentration of 425 mg/L and a maximum concentration of 7,906 mg/L. Analytical results for a sample collected 23 June 2004 by Regional Water Board staff from a property adjoining the Discharger's showed 32 mg/L of chloride in the uppermost six inches of soil.

60. Staff's inspections and the Discharger's data have shown that soil at the Musco site contains elevated concentrations of sodium, chloride, and other constituents. Salts are readily soluble in water and are likely to be dissolved by and carried with stormwater. Samples of stormwater runoff were collected from two of the land application areas during Regional Water Board staff's 14 April 2007 inspection. Analytical results showed chloride ranging from 750 mg/l to 1,600 mg/l, iron from 15 mg/l to 23 mg/l, sodium from 1,900 to 3,600 mg/l, total dissolved solids from 5,600 to 11,000 mg/l, and fixed dissolved solids from 6,800 to 14,000 mg/l. Given this data, stormwater runoff from the Musco site could reasonably be expected to contain salts in concentrations above water quality objectives.

61. The land application process used by the Discharger, the attendant concentration of salt in soil, and the threat to surface water from runoff are such that significant, active control measures are necessary to prevent the discharge of stormwater runoff from the site. WDRs Order No. R5-2002-0148 prohibits the discharge of stormwater. The Discharger is a private entity that, unlike public utilities, has the flexibility and capability to terminate its operations or remove them from the current site. Current means of controlling stormwater runoff, erosion, and sedimentation at the Musco site include the installation of wattles made of biodegradable material and the pumping of stormwater runoff from sumps into the reservoir. Each of these measures must be actively maintained and/or renewed each winter. Should the Discharger cease operations at the Musco site without removing the affected soil, the site must still be maintained to prevent the discharge of contaminated stormwater off-site or to surface water drainage courses. For this reason, Regional Water Board staff is assessing the need to impose financial assurance requirements in the next update of WDRs Order No. R5-2002-0148.

Regulatory Considerations

62. As a result of the events and activities described in this Order, the Regional Water Board finds that the Discharger has caused or permitted waste to be discharged in such a manner that it has created, and continues to threaten to create, a condition of pollution or nuisance. The Regional Water Board also finds that the Discharger is discharging waste in violation of WDRs No. R5-2002-0148 and Cleanup and Abatement Order No. R5-2002-0149.

63. The Regional Water Board's Basin Plan designates beneficial uses, including water quality objectives to protect the beneficial uses, and includes implementation plans to implement the water quality objectives.

64. The majority of the surface water drainage from the facility is to the Sacramento San Joaquin Delta. Existing and potential beneficial uses of the Sacramento San Joaquin Delta include municipal and domestic supply; agricultural supply, including irrigation and stock watering; industrial process supply; industrial service supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; warm and cold migration of aquatic organisms; warm spawning, reproduction and/or early development; and navigation. Some surface water drains directly to the California Aqueduct, which is a drinking water source for Southern California.

65. Section 13301 of the California Water Code states in part: "*When a regional board finds that a discharge of waste is taking place or threatening to take place in violation of the requirements or discharge prohibitions prescribed by the regional board or the state board, the board may issue an order to cease and desist and direct that those persons not complying with the requirements or discharge prohibitions (a) comply forthwith, (b) comply in accordance with a time schedule set by the board, or (c) in the event of a threatened violation, take appropriate remedial or preventive action*."

66. Section 13267(b) of the California Water Code states: "*In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports*."

67. The Discharger owns and operates the facility subject to this Order. Monitoring reports and other technical reports are necessary to determine compliance with the Waste Discharge Requirements, Time Schedule Order, and this Order.

68. The issuance of this Order is an enforcement action by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act, pursuant to Section 15321(a)(2), Title 14, California Code of Regulations.

69. On _____ 2007, in Rancho Cordova, California, after due notice to the Discharger and all other affected persons, the Regional Water Board conducted a public hearing at which evidence was received to consider a Cease and Desist Order.

70. Any person affected by this action of the Regional Water Board may petition the State Water Resources Control Board to review the action in accordance with Section 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, CA, 95812-0100, within 30 days of the date on which the Regional Board action took place. Copies of the law and regulations applicable to filing petitions are available at www.waterboards.ca.gov/wqpetitions/index.html and will be provided upon request.

IT IS HEREBY ORDERED that Cleanup and Abatement Order No. R5-2002-0149 is hereby rescinded, except for the purpose of enforcement, and, pursuant to Sections 13301 and 13267 of the California Water Code, Musco Family Olive Company and the Studley Company, its agents, successors, and assigns, shall cease and desist from discharging and threatening to discharge contrary to Waste Discharge Requirements (WDRs) Order Nos. R5-2002-0148 and R5-2005-0024 and Time Schedule Order No. R5-2002-0014-R01, and shall identify and implement facility improvements, in accordance with the scope and schedule set forth below to ensure long-term compliance with the three Orders, or any revisions to those Orders.

Each document submitted under this Order shall bear the following certification signed by the Discharger:

"*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment*."

Immediate Compliance

1. Effective **immediately**, the Discharger shall maintain compliance with Revised Monitoring and Reporting Program (MRP) No. R5-2002-0148 and MRP No. R5-2005-0024.

2. Effective i**mmediately**, the use of the surface water drainage course crossing the Musco property to convey wastewater is prohibited. .

3. Effective **immediately**, the direct or indirect discharge of stormwater that has contacted any surface used in any processing, treatment, storage, or application area at the Musco facility to any off-site location or surface water drainage course is prohibited.

4. Effective **immediately**, the Discharger shall maintain full compliance with WDRs Order No. R5-2002-0148, except as provided below in Item 5.

5. Effective **immediatel**y, the Discharger shall comply with the following Interim Effluent Limitations for the wastewater discharge into the million-gallon pond or its replacement tank:

Constituent	Units	Monthly Average
Total Dissolved Solids	mg/L	2,900
Fixed Dissolved Solids	mg/L	1,900
Sodium	mg/L	610

6. Effective **immediately**, no soil amendments, including fertilizer, shall be added to any land application area unless and until the Discharger submits a proposal describing the quantity of chemical amendment to be used, a description of the area over which it is to be used, and the anticipated effects on chloride, iron, and sodium concentrations and mobility within the soil column, and receives approval for addition of the amendment from the Executive Officer.

Million Gallon Pond

7. By **25 September 2007**, the Discharger shall submit a *Million Gallon Pond Replacement Report* documenting complete installation or construction of the replacement for the million-gallon pond with the tank described in Finding No. 41.

8. By **15 November 2007**, the Discharger shall submit a *Million Gallon Pond Soil Characterization Report* describing the results of the sampling program, including background samples and multiple vertical cores within the pond for total dissolved solids; fixed dissolved solids; sodium; chloride; total nitrogen; 5-day, 20ºC biochemical oxygen demand (BOD), total organic carbon, and iron. If the soils contain elevated concentrations compared to background and have the potential to adversely impact groundwater, then within **120 days** of the Executive Officer's request, the Discharger shall submit a remedial action plan.

Capacity

9. By **30 November 2007**, the Discharger shall submit an updated *Wastewater Treatment Facility Capacity Evaluation Report* prepared by a registered civil engineer. The report shall evaluate whether the entire treatment, storage, and disposal system has sufficient

capacity to comply with the WDRs during the 100-year annual wet season and if not, what facility and/or operational improvements are necessary. If improvements are needed, the report shall provide an estimate of the time required for planning, designing, funding, and implementing those improvements. The report shall also provide a monthly water balance model for current conditions, and include, at a minimum, the following factors:

a. Current (2007) wastewater pond geometry as surveyed by a Professional Land Surveyor currently licensed in the state of California;

b. Existing and anticipated solids (both organic solids and eroded sediments) accumulation in the 84-million-gallon reservoir;

c. Maintenance of no less than two feet of freeboard in the reservoir at all times;

d. Total crop uptake of nitrogen, given existing crop coverage of application areas;

e. Compliance with BOD and nitrogen loading limitations;

f. Historical local evaporation data (monthly average values);

g. Local precipitation data with the 100-year annual total distributed monthly in accordance with mean monthly precipitation patterns; and

h. Projected long-term percolation rates (including consideration of percolation from the unlined reservoir and into the land application areas).

Land Treatment Units/Land Disposal Areas

10. By **30 September 2007**, the Discharger shall submit a *Pan Lysimeter Installation Report* documenting the complete installation of sufficient pan lysimeters to characterize background soil and soil in land application areas to determine degradation, transformation, and immobilization of BOD, total and fixed dissolved solids, sodium, chloride, and iron within the uppermost five feet of soil, as described in the approved *Pan Lysimeter Installation Schedule and Workplan*.

11. By **30 November 2008**, to comply with Provision G.2.b of WDRs Order No. R5-2002-0148, the Discharger shall submit a *Percolate Quality Report*. For each monitoring parameter/constituent, the report shall include the following:

a. A summary of at least four quarters of monitoring data;

b. A calculation of the concentration in background lysimeters based on at least four consecutive quarterly monitoring events and using the methods described in Title 27, Section 20415(e)(10);

c. A comparison of background quality to that in lysimeters used to monitor all land application areas; and

d. Potential for percolate impacts on groundwater.

12. By **30 November 2008**, to comply with Provision G.2.f of WDRs Order No. R5-2002-0148, the Discharger shall submit an *Assimilative Capacity Report* including the elements described in Findings 72 through 74 of WDRs Order No. R5-2002-0148 and addressing the deficiencies described in Regional Water Board staff's letter dated 10 March 2004.

13. If the *Percolate Quality Report* shows that the wastewater discharge has impacted, or is likely to impact groundwater quality, then the Discharger shall submit, by **31 January 2009**, a *Groundwater Mitigation Plan* which shall evaluate contaminant control alternatives, describe a preferred alternative, and propose a time schedule for implementation of the preferred alternative. The selected contaminant control alternative must comply with State Water Resources Control Board Resolution No. 68-16 and be consistent with the most recent Basin Plan.

Groundwater Characterization

14. By **1 December 2007**, the Discharger shall submit a preliminary *Water Quality Protection Standard Report* including a determination of background water quality and proposing a Water Quality Protection Standard. The background groundwater quality concentrations shall be developed exclusively with analytical data collected from the wells identified as A(R2)/B(R3) in the Discharger's *Background Groundwater Quality Assessment Work Plan*.

15. By **31 January 2008**, the Discharger shall submit a *Phase II Groundwater Impact Investigation Workplan*, to complete the items listed below. The workplan shall include the information listed in sections A and B of Attachment B.

    a. Conduct an off-site groundwater investigation east-northeast of the Musco site to define the limits of groundwater impacts;

    b. Conduct an off-site groundwater investigation north of the reservoir to define the limits of groundwater impacts;

    c. Install shallow groundwater monitoring wells into the first encountered groundwater in the vicinity of wells MW-4, MW-7, and MW-8; and

    d. Perform a groundwater analysis of sulfate concentrations associated with monitoring wells MW-7 and MW-12 to determine the origin of elevated concentrations of sulfate and other constituents of concern in these wells. This analysis shall incorporate data from all existing and newly constructed monitoring wells.

16. By **15 July 2008**, the Discharger shall submit a *Phase II Wells Installation Report* certifying that the well installations described in Task 15 have been completed. The report shall include the information listed in Section C of the Attachment B, *Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports*.

Stormwater and Tailwater Control

17. By **31 October 2007**, the Discharger shall submit a *Stormwater and Tailwater Capacity Certification Report*, signed and stamped by a licensed California Professional Civil Engineer, stating that all pumps, sumps, tailwater ditches, and berms are adequately sized to:

    a. contain and convey, on-site and out of any surface water drainage course, all tailwater and stormwater runoff from each land treatment unit/land disposal area for the permitted discharge rate of 800,000 gpd and stormwater runoff generated by a 1,000-year, 24-hour precipitation event; and

    b. prevent erosion, failure, overtopping, or washout of each pumps, sump, tailwater ditch, and berm in each land treatment unit/land disposal area for the permitted discharge rate of 800,000 gpd and stormwater runoff generated by a 1,000-year, 24-hour precipitation event.

18. Each **August**, the Discharger shall inspect the Musco site, including the Class II surface impoundments, and make any necessary improvements to stormwater runoff control measures. By **30 September** each year, the Discharger shall submit a *Wet Season Preparation Report* describing control measures implemented at the Musco site to prevent the discharge of wastewater and/or stormwater to surface water drainage courses and to any off-site location. The Report shall include a wet season inspection schedule for the Discharger's staff to identify areas with erosion and sedimentation, and locations of off-site and surface water drainage course discharges. The inspection schedule shall include daily inspections and photographs of stormwater monitoring stations and sumps during periods of precipitation. The Discharger shall make any improvements needed, based on wet weather inspection observations. The Report shall discuss any changes from control measures implemented the previous year.

19. By **30 May** each year, the Discharger shall submit a *Wet Season Inspection Report of Results* describing the results of all wet season inspections and containing all photographs taken during the inspections.

Compliance Alternatives and Report of Waste Discharge

20. By **31 December 2007**, the Discharger shall submit an *Enhanced Evaporation Pilot Scale Study Evaluation Report* including a description, the results, and an evaluation of its pilot-scale enhanced evaporation study. The report shall clearly document the expected reduction in total dissolved solids and fixed dissolved solids in wastewater discharged to the land application area from a full-scale project. The report shall include a proposal regarding design, construction, and operation of a full-scale enhanced evaporation system as described in the Discharger's *Amended Conceptual Compliance Plan*.

21. By **31 December 2008**, the Discharger shall submit a revised Report of Waste Discharge, which shall evaluate the results of all tasks required by this Order, contain final Water

Quality Protection Standards, and include the following:

a. A comparison of cost estimates and anticipated timelines for achievement of one of the following compliance alternatives:

   i. Treatment modifications and/or plans to reduce wastewater salinity and other constituents of concern in the wastewater to levels less than would require containment as designated waste; or

   ii. Design and installation of liner systems for the 84-million-gallon reservoir and any additional ponds necessary to contain all designated waste, including all stormwater generated on-site, in accordance with the prescriptive standards and performance goals of Title 27 for Class II waste management units; or

   iii. Discontinuance of wastewater discharge to land.

b. Demonstration that implementation of the selected alternative will result in compliance with the Basin Plan, the California Water Code, and the California Code of Regulations.

The Report of Waste Discharge shall contain all information necessary for revised WDRs, including a completed Form 200, and shall include a proposed time schedule for completion of proposed activities. The Report of Waste Discharge shall also include a performance demonstration for any proposed Title 27 Class II liner systems or final covers. If applicable, the Report of Waste Discharge shall include specifications for removal of impacted soils and confirmation sampling.

22. **Beginning with the third quarter of 2007**, the Discharger shall submit a Quarterly Compliance Status Report. These reports shall describe all work completed during the calendar quarter to comply with this Cease and Desist Order; and any new, modified, or renovated component of the treatment and disposal system. These reports shall be submitted by the **1st day of the second month following the quarter for which the report is prepared** (*e.g.*, the January-March quarterly report is due by May 1st).

In addition to the above, the Discharger shall comply with all applicable provisions of the California Water Code that are not specifically referred to in this Order. As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all technical reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed/stamped by the registered professional.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability.

Failure to comply with this Order or with the WDRs may result in the assessment of Administrative Civil Liability of $1,000 to $10,000 per day of violation, depending on the violation, pursuant to the California Water Code, including sections 13268, 13350, and 13385.

The Regional Water Board reserves its right to take any enforcement actions authorized by law.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____ 2007.

_____
PAMELA C. CREEDON, Executive Officer

MRH/SER/WSW:19-Jun-07

Attachments:
A: Summary of Violations of WDRs Order No. R5-2002-0148 and CAO No. R5-2002-0149
B. Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports.